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ABSTRACT

A teacher in an East Tennessee elementary school observed after a year of kindergarten that her students had a hard time recognizing their letters based on the Brigance Test. She taught one letter a week by thematic instruction, and she was concerned her students would not be ready to read if they did not know their letters. A study was conducted to determine whether or not theme-based instruction with added tactile instruction would improve their letter recognition. Only four students from one kindergarten class participated as subjects because students were not to recognize the letters before they were taught. In the first phase, four students were taught by thematic instruction for two letters. In the second phase, the students were taught by thematic instruction with added tactile instruction for two different letters. The four students served as the control group for theme-based instruction and the treatment group for theme-based instruction with added tactile instruction. Treatment involved having students practice the uppercase and lowercase letter tactilely through various media four times weekly; students also vocalized the letter name while tracing it. The control group did not receive any tactile instruction. At the end of instruction, students were tested on their recognition of those letters that were taught by showing them flashcards of uppercase and lowercase letters. A paired sample t-test revealed no significant difference in general mean score between those who had tactile instruction and those who did not, suggesting that the use of thematic instruction with added tactile instruction did not improve students' recognition of upper or lowercase letters. (Contains 2 tables and a 44-item bibliography. Appended are approval forms.) (NKA)

A COMPARISION OF KINDERGARTEN CHILDREN THAT RECEIVE TWO DIFFERENT TYPES OF INSTRUCTION FOR LETTER RECOGNITION

An Action Research Project

Presented to

the Department of Teacher Education

of Johnson Bible College

In Partial Fulfillment

of the Requirement for the Degree

Masters of Arts in

Holistic Education

by

Emily Suzanne Glunt

July 2000

APPROVAL PAGE

This action research project by Emily Suzanne Glunt is accepted in its present form by the Department of Teacher Education at Johnson Bible College as satisfying the action research project requirements for the degree Master of Arts in Holistic Education.

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ABSTRACT

A teacher in a suburban elementary school in East Tennessee observed at the end of a year of kindergarten her students had a hard time recognizing their letters based on the Brigance Test. She taught on letter a week by thematic instruction. The teacher was concerned her students would not be ready to read if they did not know their letters.

According to Piaget, "representational thought has its origins in direct action and interaction with the environment which occurs during the sensorimotor period" (Roberts, 1979, p.54). Some research showed that using a multisensory approach to teaching the letters helps students recognize them better (Osborn, 1996; Elwell and Hamm, 1997; Grant, 1995). Other research showed that students only acquire alphabet knowledge on a letter by letter basis (Worden and Boettcher, 1990). The purpose of this study was to determine whether or not theme based instruction with added tactile instruction would improve the letter recognition of kindergarten students.

Only 4 students from one kindergarten class participated as the subjects for this study because students were not to recognize the letters before they were taught. In the first phase, four students were taught by thematic instruction for two letters. In the second phase, the students were taught by thematic instruction with added tactile instruction for two different letters. The four students served as the control group for theme based instruction and the treatment group for theme based instruction with added tactile instruction.

The treatment involved having the researcher spend 20 minutes four times a week having the students practice the uppercase and lowercase letter tactilely through various

media such as dippety do, play dough, shape blocks, finger paint, shaving cream, yarn, sand, and letter puzzles. Students were also asked to vocalize the name of the letter while they were tracing the letter. The control group did not receive any tactile instruction.

At the end of theme based instruction and theme based instruction with added tactile instruction, the students were tested on their recognition of those letters that were taught by showing them flashcards of uppercase and lowercase letters. A paired sample t-test revealed that there was no significant difference in general mean score between those who had tactile instruction and those who did not.

This research concluded that the use of thematic instruction with added tactile instruction did not improve students' recognition of upper or lowercase letters and supported Worden and Boetttcher's belief that children acquire alphabet knowledge on a letter by letter basis. Students may have not been ready to discriminate the letters of the alphabet.

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INTRODUCTION

Significance of the Problem

A teacher, who has taught the same East Tennessee classroom for the past 11 years, discovered that at the end of a year of kindergarten students had a hard time recognizing their letters. The teacher was concerned that her students would not be ready to read if they did not know their letters. The results from the section on letter recognition of capital and lowercase letters on the K-1 Brigance Test was not as high as she would have expected after a year in kindergarten. The teacher believed that the students would not be ready to read without mastering the letters in kindergarten. It has been discovered by many sources that knowing the alphabet is crucial to learning to read (Naslund and Schneider, 1996, p. 30; Laurita, 1988, p. 288; Blachman, 1984, p. 610). The teacher taught letters by introducing one letter a week in theme based instruction. She and the researcher believed that some form of added tactile instruction would increase a student's ability to recognize a letter.

Statement of the Problem

Would adding tactile experiences with letters along with theme based instruction increase a students ability to recognize upper and lower case letters? This was the question that the supervising teacher and the researcher sought to discover. Piaget and Inhelder believed that vision and touch are related in one's schema in which they learn symbols (a. Kratochwill, Severson, & Demuth, p. 146). Grant found that using "visual, auditory, and tactile stimulation enabled children to receive new materials through many

channels (Grant, p. 460). According to the findings of these researchers, students should be able to recognize letters better after having tactile stimulations with letters of the alphabet. Using Tactile instruction along with theme based instruction should improve letter recognition for students.

Definition of Terms

Tactile Instruction For the purpose of this study tactile instruction has been defined as instruction that uses experiences through tracing and forming the English letters through various media such as play-dough, sand, dippety do, yarn, and shaving cream, shape blocks, finger paint, and letter puzzles. Students traced or drew letters in these various media while they were practicing saying the letter name.

Theme based instruction In this study, theme based instruction has been defined as having a particular letter of study for the theme. Each week, the teacher introduced the letter by a story with cards. The teacher also picked out words that began with the particular letter being studied and used these as a foundation to letter exposure. Each letter was introduced to the student in various subject areas including Math, Science, Health, Language, and Social Studies. For example, when a student learned "D" one week, they did dino graphing and dino skeletons. Students also created puppets that went with each letter story. Not much time was spent on writing the letter as an activity. Theme based instruction relied on introducing the letter that words started with.

Multi-Sensory Approach In this study, multi-sensory approach has been defined as having students experiment with English letters through visual, tactile, and auditory experiences.

Limitations

The research project was limited to one classroom sample. It only represented a fraction of those children located in a suburban area in East Tennessee. Having one classroom did not represent all kindergarten children.

Since the placement of subjects had already been determined, the study did not contain a random sample. The researcher had to use those students that were placed in the supervising teacher's classroom. This sample did not represent all kindergarten students.

Out of the classroom sample, only four students who did not know the same capital and lowercase letters g, j, q, d could be included in the study. All other students in the classroom where excluded from the study. The small sample did not represent all kindergarten children.

The time period of four weeks was also a limitation. Data would only be collected from those two weeks with theme based instruction and those two weeks with theme based instruction with added tactile instruction. If the study could have been over a longer period of time, more data could have been accumulated.

The supervising teacher and researcher would also be limited in not knowing if a student had a perceptional learning disability. Students in kindergarten were not tested for this type of disability. Students could not tested for this disability until first or second grade. If students had a perceptional learning disability, they would not have been able to recognize letters as other children in this study.

Assumptions

The research assumed all four procedures for tactile activities contribute equally to the overall tactile experience. Using play dough to form letters contributed equally along with writing letters in shaving cream. The researcher assumed that using such media as play dough, sand, dippety do, yarn, shaving cream, shape blocks, finger paint, and letter puzzles would contribute equally to the tactile experience.

Another assumption was that when the teacher taught a particular theme based unit on a certain letter they all would receive equal treatments for the other unit on different letters. Students would be given the same amount of time for letter exposure on G, J, Q and D. There would not be more time spent on one letter over another.

Hypothesis

This study tested two hypotheses. It tested one hypothesis that there was no difference between theme based instruction and theme based instruction with added tactile instruction on sight letter recognition of capital letters at the .05 level of significance as measured by a t-test of paired sampling.

It tested a second hypothesis that there was no difference between theme based instruction and theme based instruction with added tactile instruction on sight letter recognition of lower case letters at the .05 level of significance as measured by a t-test of paired sampling.

Chapter 2

REVIEW OF RELATED LITERATURE

History of Multisensory Learning

Using the multisensory approach is not a new method to teaching reading and writing. Similar forms date back to Plato (427-347 B.C.), who taught boys writing by tracing the shapes; and Horace (65 B.C.), who taught students by using pastry pieces to make letter shapes (a. Loeffler, 1992, p. 159). In more recent times, Montessori (1965) developed a tactile method to teaching writing and reading by having students trace sand paper letters to get the feeling of writing (Montessori, 1965, pp. 92-93). She believed that students should be guided so the teacher is not an obstacle between the child and the experience.

Students need the chance to experiment through many methods (Loeffler, 1992, p. 38). The multi-sensory approach coincides with John Dewey's philosophy of teaching that students need a variety of ways to learn new concepts. He believed educators needed to stimulate children to develop their own methods and not be just given information (Dewey, 1966, p. 48). In many places where kindergarten children are unable to recognize their letters, hands on learning is recommend for students (Osburn, 1996, p. 1).

Multisensory learning has continued today with Felzer's (1998) new multisensory reading program. None of the 25 kindergarten students in her study could identify any letters of the alphabet. More than 80% of them spoke Spanish as their first language. Her method included showing and matching various word cards with physical objects.

Students would then make a hand shape for the letter that the word on the card began with and then would sign the word. While students signed the letter they would chant the letter sound. Students used the finger alphabet throughout the study. Students learned a variety of words using this technique. Later they added words to make simple sentences and simple stories. After a year of the multisensory reading program, students were given the Gray Oral Reading Test. They found "that 21 of the 25 students were reading at the first-grade level and 7 of these were reading at level 1.5 or higher." (Felzer, 1998, pp. 169-183). In this case, a multisensory approach helped students recognize letters.

Elwell and Hamm (1997) tried to improve kindergarten alphabet skills by using the Sunform Alphabet System. This system integrated the visual, auditory, and psychomotor modalities. The first phase of this system concentrated on the visual by introducing students to the letters by telling stories with picture cards for three 20 minute sessions. Phase two, consisting of 20 minute sessions, focused on the visual and verbal instructions to teach them to recall the letter sounds on the picture cards. Phase three, consisting of one or two 20 minute sessions, concentrated on the auditory by having students connect the correct sounds to the picture clues and letters. Phase four focused on the psychomotor by having students learn to write the correct letter forms (Elwell and Hamm, 1997, pp. 16-17). Of the 57 kindergartners in the study, the researchers used 27 of them that could identify 16 or less of the upper and lower case letters. Edwell evaluated progress at the end by having them recognize upper and lower case letters by showing them cards. After going through this multisensory approach, she found that there was an increase of 18 percent of those who could recognize 17 or more letters (Elwell and Hamm, 1997, pp. 10 and 21).

Tactile Instruction

Research showed that adopting tactile activities into a reading and writing program helped students to retain and learn more (Grant, 1985, p. 460; Kratochwill, 1978, p. 159). Kratochwill performed a study in 1978 using 229 normal middle class preschoolers that had a mean age of five years and 1 month. In this study students had one of five conditions including experiences with two-dimensional small print, two-dimensional large print, two-dimensional large print where the student traced the card, three-dimensional large print, or three-dimensional large stimuli where the student manipulated it (Kratochwill and et al, 1978, pp. 144-149).

Each of the students in the Kratochwill study was assigned to one of the five groups. They were exposed to "paired-associate letter naming tasks." In this preschoolers were exposed to five different letter cards and were to say the letter on the card. The card would be taken away and they would have to tell what letter they were looking at. Students in the group with the two-dimensional large print card where they were to trace the letter, were to trace it once and name the letter. In the three-dimensional large stimuli, they were allowed to manipulate it when first presented it. Kratochwill found that using large letters was more profitable than using smaller ones. He also found that students who manipulated 3-d letters did better at learning letters than those who traced 2-d letters. He believed that manipulation promotes an effective kinesthetic feedback with the visual figures (Kratochwill, and et al, 1978, pp. 144-149). An implication for teaching the alphabet from this study shows that students should be provided a chance to manipulate 3-D letters rather than just viewing them.

Not only did tactile or psychomotor activities help with letter recognition and sounds of letters, tactile activities also helped with spelling. "Visual, auditory, and kinesthetic modalities must cross" in order for spelling to become automatic (Grant, 1985, p. 457). In one study by Grant (1985), 44 children from a middle to upper middle socio-economic group were taught in the first grade and tested each year in the second, third, and fourth grades. The control group consisted of students who had higher achievement while the experimental group consisted of at-risk students. The control group progressed by starting out first with reading. The teacher then taught them how to write and finally worked with teaching spelling. The experimental group started first with writing. The teacher then taught them spelling and finally worked with teaching them reading. Students in the experimental group, who started out by tracing letters by writing, had a higher self-reliance over the next three year period (Grant, 1985, pp. 455-460). It could be that students become more confident in learning when they can use visual, auditory, and tactile stimulation. These results also support what McGee and Richgels (1989) have found. They believe that students do not learn to name letters before they learn to write them. "Naming and writing letters go hand in hand" (McGee and Richgels, 1989, p. 224).

Tactile learning experiences have been used for many years with disabled children. Jaworski (1984) designed a multisensory language-oriented curriculum for six hearing impaired preschoolers. The subjects ranged in age from 2 and half to five years. They spent five half days each week completing the 27 week curriculum. In this study she was teaching students to recognize the letters of the alphabet. Each week she

introduced a new letter through such tasks as art and cooking activities, snacks, beginning sound picture cards, yarn and lacing letters, sandpaper letters, alphabet string beads, and name cards. Students were exposed to the letters through their five senses. Students were evaluated based on whether they could match uppercase letters to lowercase letters, uppercase letters to uppercase letters, lowercase to lowercase letters, and uppercase to lowercase letters that were in their name. Students had to also find letters and name some letters upon verbal request. The results revealed that students achieved the goal of enhancing their receptive awareness to the letters of the alphabet (Jaworski, 1984, pp. 27-67).

Brain Development

Using multisensory approaches helped students retain information. Montessori thought when tactile sense along with vision came together it allowed one to fix forms in the memory (b. Kratochwill and et al, 1978, p 146). She believed it was through the cooperation of the senses that an image becomes fixed (Montessori, 1912, p. 325). Rose (1998) said that by handling an object, it "can get mapped onto the pattern of visual sensations generated by viewing an object" so that the two experiences enhance each other. Handling an object gave the student a chance to see the object visually and tactilely (Rose, 1998, p. 435). Gibson believed that students need many opportunities to compare one shape to another by "tracing, copying, and generating one's own letters and words." He thought that mastering letters could not occur by pure memorization. By noticing the similarities and differences between letters shapes, children could be able to build a "separate mental category for each of the letter forms." It is only through these

experiences that students received more channels in which to view the similarities and differences between letters (Gibson, 1962, p. 90).

It has been discovered that through motor activities students are able to develop concepts and complex thinking that help in the development of language arts skills (Norton, 1997, p. 36). According to Piaget, "representational thought has its origins in the direct action and interaction with the environment which occurs during the sensorimotor period" (Roberts, 1979, p. 54). Students need the chance to interact with objects. This goes along with what was learned in the study by Grant discussed earlier. He found that using "visual, auditory, and tactile stimulation enabled children to receive new materials through many channels" (Grant, 1985, p. 460).

Alphabet and Reading

According to Badian (1995), children who come to school without the knowledge of the form of letters or print awareness are likely to have problems when taught to read (Nel, 2000, p. 139). It has been discovered by many sources that knowing the alphabet is crucial to learning to read (Naslund and Schneider, 1996, p. 30; Laurita, 1988, p. 288; Blachman, 1984, p. 610). One study by Scanlon and Vellutino (1996) found when they had kindergartners name letters from randomly stacked letter cards that it was a successful prediction of future reading as an entire readiness test (Snow, 1998, p. 113-114).

The process of reading involves relating "pronunciation and meaning to printed symbols, and of combing meaning of groups of words into a thought" (Grant, 1985, p. 459). Discrimination during reading increases when students learn the names of letters

before developing sight vocabulary (Robeck and Wilson, 1974, p. 9). Barclay (1995), suggested that recognizing letters and writing behaviors could be further promoted through using alphabet blocks, alphabet puzzles, letter tiles, magnetic boards, dry erase boards, easels, chalkboards, and alphabet pocket charts (a. Nel, 2000, p. 140). By having hands on experiences with letters, students may learn the letters to enable them to read.

Manson suggested that there is a natural hierarchy of knowledge development in learning to read words. He said that the first step occurs when students recited, named, and printed letters. In the second step, students move from printing letters to reading labels and signs. In the third step students moved on to reading nouns and function words (Manson, 1980, pp. 220-221). Laurita had found that a child's transfer from speech to print rests on the ability of the child to recognize and write individual letters (Laurita, 1998, p. 288). From this research, one can conclude that learning the individual letters first is crucial to learning how to read.

Letter Discrimination

From past research one learns that students do not recognize all the letters in the same way. A study done by Worden and Boettcher (1990) found that 79% of 5 year olds and 97.5 % of 6 year olds could name between 21-26 of the uppercase letters. For the lower case letters 39% of five-year-olds and 92.5% of the six-year-olds could name them when they saw the letters (Worden and Boettcher, 1990, p. 285). This data showed that lower case letters are harder for students than the upper case letters. It also displayed how letter recognition is harder for those students who are five than those who are six.

Carroll (1980) researched the order of alphabet letter name acquisition. Out of her 444 subjects only 180 subjects were used for the lowercase recognition test, while there were 89 students used for the upper case recognition test. Only those students who could correctly recognize one or more, but less than 26 letters were analyzed. Using flashcards she recorded whether they could identify the letter or not. The proportions of children correctly identifying each letter were then recorded. She found that "x" and "o" were the letters that were most correctly identified. The lower case letters g, b, q, d, and l had a proportion of 33 percent or below. The uppercase letters J, D, Y, I G, V, and U had a proportion of 45 percent or below. This study showed that letters are not acquired in the same way (Carroll, 1980, pp. 4-7, 14).

Studies done earlier have found that letter recognition improved with age because of delayed maturity of perception (Wilson and Flemming, 1940, p. 4; Wilson and et al., 1939p. 574; Gibson and et al., 1962, p. 574; Davidson, pp. 452-465). Cohn believed that students have difficulty recognizing letters as a result of not being able to observe the small parts of letters. They also have problems because they are unable to see the letter correctly in their perception. The letter may look reversed when it actually is not (Cohn, 1974, p. 5). According to Adams, learning to recognize the letter shape that matches the letter name "takes time and practice and takes careful visual attention." Adams believed that upper and lower case letters should be taught separately to avoid confusion. (Diamond and Mandel, 1995, p. 8). It is safe to say that through more time, most students may be better able to identify letters.

As mentioned earlier, the Worden and Boettcher study found differences in recognizing uppercase and lowercase letters (Worden and Boettcher, 1990, p. 285).

Feitelson believed that there is an upper case advantage to learning letters that can be attributed to a greater visual simplicity and distinctiveness of upper case letters. The reason "b" and "d" were confused was because there was no distinctive feature that separates the two from each other. They are mirror images of each other (Feitelson, 1988, p. 139). One study by Cohn found that those letters that have similar form in the upper case and lower case are easier to identify. He found that out of ten of the easiest letters to name, nine had almost the same form in the uppercase and lowercase. Out of ten of the most difficult letters to name, nine had completely two different forms in both cases. The letter "p" was the only letter missed that had the same form in both cases (Cohn, 1974, p. 7).

Some letters are harder for students to learn than others (Laurita, 1998, p. 292; Cohn, 1974, p. 7; Gunderson, 1985, p. 119). There were many letters that lend themselves to ambiguous interpretations such as d-p-b-q, s-z, and m-n (Laurita, 1998, p. 292). Of those letters b, d, p, and q cause the most difficulty for children (Gunderson, 1985, p. 119; Cohn, 1974, p. 7). Learner (1976) discovered that those letters that were the most difficult to recognize were the same ones they could not write such as x, z, y, j, p, and q (a. Grant, 1985, p. 456). Knowing that some letters are harder than others, teachers should spend more time helping students to see the individual features of letters. Gilroy found that when students had a chance to copy letters by learning the different structural features of the letter, they were better able to recognize the letter (Gilroy, 1979, p. 11).

A study done by Richard May found that there is a hierarchy in which students learn differences in shapes and letters. Students have to go through one dimension conceptually before they can get to harder ones (May and et al, 1976, p. 321). Frith said that the earliest distinction one makes between letters is upright and non-upright. The upright were those shapes that have a distinct feature at the top so the student scans their eyes from the top to the bottom. An example of this would be the letter F. The non-upright "includes shapes that are upside down and sideways." In this case the distinct feature was at the bottom so the students has a conflict with the downward scanning of their eyes. The sideways category of shapes can be defined even more into left or right distinctions. This would be the case with the b and d. Students have difficulties because even though they see the vertical line is before the loop on the b, they cannot remember it when they have seen d. The letter b and d looked too similar. Frith found that a child does not make the correct left/right distinctions until he has learned the first distinction of upright (Frith, 1980, pp. 4-9). This explained why children acquire different kinds of alphabet knowledge on a letter by letter basis (Worden and Boettcher, 1990, p. 288). According to Piaget, "children learn names for things after they have learned to discriminate them" (Dowing and Lundsteen, 1980, p. 20). Cohn suggested that the best strategy to get students to recognize letters was to teach letters in groups that have similar structures (Cohn, 1974, p.7).

Effects of Home Literacy on Recognizing Letters

The home environment has an impact on what letters students know before entering kindergarten. Students learn the names of many letters through their experiences

"from parents, preschool teachers, alphabet books, and children's television programs" (Treiman, Tincoff, and Richmond-Welty, 1996, p. 506). The influence parents have on sending their child to preschool also has an impact. According to the National Association for Education of Young Children and International Reading Association (1998), "children who have few literacy experiences during the preschool years can be severely limited in attaining successively higher reading and writing levels" (b. Nel, 2000, p. 139). Students are also exposed to print through "billboards, storefronts, street signs, television commercials, and containers of various kinds" (Hiebert, 1981, p. 237). Print exposure at home was why Manson believed his subjects knew so many letters. Over half of the four year old children in his study could name the letter which corresponded to the printed form of over 20 letters of the alphabet (Manson, 1980, pp. 212-213).

Young children have experiences drawing at home before entering kindergarten. The first word students can write is usually their name (Denny and Lamme, 1981, p. 13). This means that students are probably more aware of those letters that are found in their name. Ferreiro (1986) reported that one preschooler, Santiago, associated letters with the names of people. The boy called R "Ruben's" and A "Anne's" (Ferreiro, 1986, p. 18). Ferreiro showed how students learn to associate letters with names even at an early age. Kolls believed there is a "parallel development between drawing and cognition. Learning to think was learning to organize one's experiences" (Kolls, 1980, p. 4). When students write their names they are organizing their thoughts.

Knowing letters coming into kindergarten affects research. This may be one of the reasons why when the Kratchowell study was duplicated for kindergarten students, there was no difference in learning letters with any of the methods used for the similar study with preschool children done earlier. In this study he used 152 kindergarten students selected from 6 classrooms with a mean age of 6 years and 1 month. Kratochwill used the same five groups as before except he exposed them to six letters instead of five. He exposed them to either two-dimensional large letters, two-dimensional small letters, three-dimensional large letters, two-dimensional letters with tracing, or three-dimensional stimuli letters with manipulation. Of all of the methods, none showed a difference in how well they recognized letters (Kratochwill and et al, 1978, pp. 150-151). If students already know the letters coming in, it can be assumed that any method of teaching letters would make no difference. Future studies where students do not know the letter before might be a better predictor to determining whether tactile experiences actually improve letter recognition.

Chapter 3

METHODS AND PROCEDURES

Subjects

The subjects were four kindergarten children, one boy and three girls of Caucasian decent. Their mean age was five years and three months. They were drawn from one self-contained classroom in a public elementary school located in a suburban area in East Tennessee. The students were given a letter recognition test at the beginning of kindergarten to determine which capital and lower case letters they could not identify. None of the subjects could identify the letters G, J, Q, and D, in either the capital or the lower case form when they were given flashcards with D'Nealian letters. These four students scored within the range of 85.5 to 92.5 on the Brigance Test, which was given to all kindergarten students in the county. None of these four students had gone to a preschool program before entering kindergarten.

Time Line

The research project began in the fifth month of school and ended in the sixth month of school. The study consisted of a total of four weeks in which two weeks were completed before Christmas break and the last two were completed after Christmas break. During the first two weeks before Christmas, four students were exposed to letters G and J by theme based instruction. After those two weeks they were tested on the last day to see if they recognized the upper and lower case letter G and J. Students were to

identify the upper case and lower case letters G and J out of a stack of flashcards containing all the letters of the alphabet including the upper case and lower case letters.

The second part of the study began after Christmas. During that time the same four students were exposed to the letters Q and D by theme based instruction with added tactile instruction. Each of the four students during Q week spent four 20 minute sessions with the researcher practicing making the upper case and lower case Q. The students used dippety do, play dough, shape blocks, and finger paint for the tactile instruction over Q. For D week students spent four 20 minutes sessions practicing making the upper case and lower case D. They used shaving cream, yarn, sand, and letter puzzles for the tactile instruction over D. After those two weeks they were tested on the last day to see if they recognize the capital and lower case letters Q and D. The same test was given by having them now identify the upper case and lower case Q and D out of a stack of flashcards containing all the letters of the alphabet including the upper case and lower case letters.

Tests

An evaluation was made based on exposing students to flashcards to determine their letter recognition. These 6x6 inch flashcards contained D'Nealian letters. After the first two weeks of just theme based instruction, students were tested over G and J. To test for upper case G and J, students were first tested by being shown a mixed up stack of D'Nealian letter flashcards containing all the upper case letters of the alphabet. They were tested for the lower case letters g and j by using the stack of all lowercase letters of the alphabet. The student told the researcher what letter was on the card. Responses were recorded over just the flash cards with the letters G, J, g, and j. The student received one

point for each of the correct responses for identifying the letter cards G, J, g, and j out of all the letters of the alphabet. The other letters they identified correctly out of the stack were not recorded in the data. All the letters of the alphabet were put into the stack of flash cards to make the test more random.

After the last two weeks of theme based instruction with added tactile instruction, they were tested in the same manner, but with Q and D. There were given a mixed up stack of upper case and then lower case flash cards containing all the letters of the alphabet. This time the responses were recorded over just the flash cards with the letters Q, D, q and d. The student received one point for each of the correct responses for identifying the letter cards Q, D, q, and d out of all the letters of the alphabet.

For each two week time frame for the theme based instruction and the theme based instruction with added tactile instruction, the scores from those particular two letters were combined. For the theme based instruction, all four student's points for identifying G and J were combined so collectively they received from 0 to 8 points. For identifying the lower case g and j, the four student's points were put together so they could receive anywhere from 0 to 8 points. The same was done for the upper case letter with Q and D and with the lowercase letter q and d. Eventually the point value from the upper case letters with theme based instruction was compared to the point value from the upper case letters with theme based instruction with added instruction to see if there is a difference. A comparison was made between the point values of the lower case letters with theme based instruction and with the lower case letters with them based instruction with added tactile instruction.

Experimental factor

The factor that was introduced to the subjects was tactile instruction. Students received four 20 minutes sessions each week, receiving four sessions over letter Q and four sessions over letter D. During tactile instruction, students participated in making letters with play dough, yarn, shaving cream, shape blocks, sand, finger paint, dippety do, and letter puzzles. During that time students traced and drew letters in the various media mentioned above, while they also said the name of the letter. The factor was controlled by only having students work on tactile activities with letters Q and D and not G and J.

Statistical Analysis

Once the data was collected a t-test with paired sampling was used. The mean score of capital letters from the theme based instruction was compared to the mean score of capital letters from theme based instruction with added tactile instruction. The same was done for the lower case letters since there were two hypotheses. The capital letters' mean score of combined G and J was compared to the combined Q and D scores. The lower case letters' mean score of combined g and j was then compared to the combined q and d score. The scores were evaluated at a .05 significance to see if there was any difference in recognizing the capital letters and then lower case letters.

Chapter 4

RESULTS

Analysis of the Data

After completing t-tests for each of the two hypotheses, the researcher found no significant differences, at the .05 level of significance. The first t-test compared thematic instruction and thematic instruction with added tactile instruction with uppercase letters. There was no significant difference, at the .05 level of significance. The mean score for thematic instruction and thematic instruction with added tactile instruction was the same. Refer to table 1. The first hypothesis stated that there would be no difference between theme based instruction and theme based instruction with added tactile instruction on sight letter recognition of capital letters at the .05 level of significance as measured by a t-test of paired sampling. Hypothesis 1 was retained.

TABLE 1

Comparison of Post-test Means of Thematic Instruction and Thematic Instruction with Added Tactile Instruction with Uppercase Letters

Groups	N	Mean	Mean Difference	Std. Error of Means	t ratio	Sig. 2 -tailed
Thematic Instruction	4	1.75				
			.00	.41	.000	1.000*
Thematic Instruction with Added Tactile Instruction	4	1.75				

* Not Significant

The second t-test compared thematic instruction and thematic instruction with added tactile instruction with lowercase letters. There was no significant difference, at the .05 level of significance. Refer to table 2. The second hypothesis stated there would be no difference between theme based instruction and theme based instruction with added tactile instruction on sight letter recognition of lower case letters at the .05 level of significance as measured by a t-test of paired sampling. Hypothesis 2 was retained.

TABLE 2

Comparison of Post-test Means of Thematic Instruction and Thematic Instruction with Added Tactile Instruction with Lowercase Letters

Groups	N	Mean	Mean Difference	Std. Error of Means	t ratio	Sig. 2 -tailed
Thematic Instruction	4	1.25				
			.50	.29	1.732	.182*
Thematic Instruction with Added Tactile Instruction	4	.75				

* Not Significant

In this study, no significant differences were observed between thematic instruction and thematic instruction with added tactile instruction when trying to teach students to recognize the uppercase and lowercase letters of the alphabet.

Chapter 5

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Summary

This research sought to discover whether theme based instruction with added tactile instruction would increase the recognition of uppercase and lowercase letters of the alphabet. The results showed that theme based instruction with added tactile instruction did not make a significance difference in helping kindergarten students recognize uppercase and lowercase letters. Tactile experiences with letters did not show to be an essential component in teaching students the letters of the alphabet.

Although there were no significant differences in the research, students seemed to do slightly better with thematic instruction than with thematic instruction with added tactile instructions in recognizing the lowercase letters. The researcher believed that this may have been the result of not picking the letters with the same degree of difficulty. Research showed that some letters are harder to master than others (Carroll, 1980, pp. 4-7, 14). Student motivation may have been another factor because the thematic with added tactile instruction was taught after Christmas vacation. The return from Christmas may have affected the results.

Conclusions

Previous research supported a significant difference in achievement of those students who were taught through a multisensory method (Felzer, 1998 p. 168-183). It is likely that a larger group of subjects would have shown significant differences between

theme based instruction and theme based instruction with added tactile instruction. The control and treatment group had only four subjects. The number of subjects was limited to having only four students that missed the same uppercase and lowercase letters.

An interesting observation of the mean score of the thematic instruction and thematic instruction with added tactile instruction for lowercase letters showed that the students performed slightly better on just the thematic instruction than the thematic instruction with added tactile instruction. Although, still not statistically significant, the slight gain lead the researcher to believe that the lowercase letters chosen for thematic instruction with added tactile instruction may have been more difficult for the student to identify in the time given. Perhaps, having a longer period of time to teach the letters may have made a difference.

There was some concern that the letters chosen for thematic instruction with added tactile instruction may have been more difficult than those used for just the thematic instruction. Having been taught b and g previously to teaching q and d in the thematic instruction with added tactile instruction may have made it easier to confuse the letters. The classroom teacher tested the students on the letters learned with flashcards after the research was totally completed and found that the students did not identify the same letters correctly that they had for the tests on the research. Some of the letters previously recorded as mastered by a few students with thematic instruction were not mastered when the teacher gave the test after the research. As a result, the teacher believed either there was confusion when more letters were added or the student did not master the letter when they identified it correctly the first time. The students could have

been arbitrarily guessing the letters shown to them. The subjects who participated in the research may have not been ready to recognize those letters.

Recommendations

Although this action research project yielded the hypothesized results, the body of related research presented here supports the idea that multisensory learning helps students to recognize letters. The researcher believed that there are some factors that may have affected the research. The factors related to the subjects used, the length of the study, and the way tests were given.

Since the subjects were only to be part of the intern's classroom, the researcher had a hard time finding subjects that missed the same four uppercase and lowercase letters. The researcher recommends that future studies include more subjects who do not know the letters being studied. Since the time frame was a limitation in this study, future studies should prolong the study by repeating the experiment over several years with different students.

The cognitive development of the student may also be a factor. According to Piaget, "children learn names for things after they have learned to discriminate them" (Dowing and Lundsteen, 1980, p. 20). The students in the research may have not been ready to learn a letter a week. They may have needed several weeks to a month to learn a particular letter. The researcher recommends that future studies should spend two or more weeks on each letter to see if there is any difference.

The researcher has learned that for some kindergarten students it may take longer for them to learn the letters. In order to make sure letters are mastered, the researcher

recommends that the students be tested several times before the letters are considered to be mastered. The researcher believes that if they get the letter correct four times during various testing periods throughout the year that the letter can be considered mastered.

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APPENDICES

APPENDIX A

KNOX COUNTY SCHOOLS
ANDREW JOHNSON BUILDING

Dr. Charles Q. Lindsey, Superintendent

October 4, 1999

Ms. Emily Glunt
7900 Johnson Drive
Box 777251
Knoxville, Tennessee 37998

Dear Ms Glunt:

You are granted permission to contact appropriate building-level administrators concerning the conduct of your proposed research study entitled, "A Comparison of Kindergarten Children that Receive Two Different Types of Instruction for Letter Recognition." In the Knox County schools final approval of any research study is contingent upon acceptance by the principal(s) at the site(s) where the study will be conducted.

In all research studies names of individuals, groups, or schools may not appear in the text of the study unless *specific* permission has been granted through this office. The principal researcher is required to furnish this office with one copy of the completed research document.

Good luck with your study. Do not hesitate to contact me if you need further assistance or clarification.

Yours truly,

Samuel E. Bratton, Jr.

Samuel E. Bratton, Jr., Ed.D.
Coordinator of Research and Evaluation
Phone: (423) 594-1740
Fax: (423) 594-1709

Project No. 009

APPENDIX B

November 15, 1999

Dear Parents,

As you already know, Mrs. Meek has the opportunity to have Emily Glunt, as an intern from Johnson Bible College, working in her classroom for most of the year. As one of her requirements, Ms. Glunt must conduct a research project for her Master's degree. She has decided to help the students work on recognizing their letters that they did not know before.

The project will consist of students receiving the Mrs. Meek's theme based instruction for two weeks. The next two weeks students will receive theme based instruction plus some extra instructional time with tactile experiments with letters. Your child will participate as a subject for just four weeks. Two weeks will be done before Christmas and two weeks will be done after Christmas. The purpose of the study is to determine if tactile experiences with letters will increase their recognition of letters.

Ms. Glunt is excited about being able to work with your child on this project. She wants to learn more about helping your children learn their letters. We need to know if your child can participate in the study. Please complete the attached form and return it to Mrs. Meek. In order to proceed in this project, Ms. Glunt must have every student that is participating to return the permission slip. If you have any questions you can contact me at (423) 579-2108. Thank you for your cooperation.

Sincerely,

_____ _____

Principal Mrs. Meek

_____

Emily Glunt

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